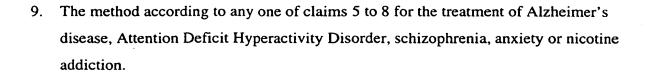CLAIMS

1. A pharmaceutical composition comprising a positive modulator of a nicotinic receptor agonist together with a pharmaceutically acceptable carrier, said positive modulator having the capability to increase the efficacy of the said nicotinic receptor agonist.

2. The pharmaceutical composition according to claim 1, in addition comprising a nicotinic receptor agonist.

3. The pharmaceutical composition according to claim 1 or 2 wherein the said positive modulator is 5-hydroxyindole.

4. The pharmaceutical composition according to any one of claims 1 to 3 wherein the said nicotinic receptor agonist is an α7-nicotinic receptor agonist.

5. A method for the treatment of a condition associated with reduced nicotine transmission, by administering to a patient in need of such treatment, a medically effective amount of a positive modulator of a nicotinic receptor agonist, said positive modulator having the capability to increase the efficacy of the said nicotinic receptor agonist.

6. The method according to claim 5 wherein the said positive modulator is administered together with a nicotinic receptor agonist.

7. The method according to claim 5 or 6 wherein the said positive modulator is 5-hydroxyindole.

8. The method according to any one of claims 5 to 7 wherein the said nicotinic receptor agonist is an α7-nicotinic receptor agonist.

9. The method according to any one of claims 5 to 8 for the treatment of Alzheimer's disease, Attention Deficit Hyperactivity Disorder, schizophrenia, anxiety or nicotine addiction.

10. The method according to any one of claims 5 to 8 for the treatment of Alzheimer's disease.

11. The method according to any one of claims 5 to 8 for the treatment of Attention Deficit Hyperactivity Disorder.

12. The method according to any one of claims 5 to 8 for the treatment of schizophrenia.

13. The method according to any one of claims 5 to 8 for the treatment of nicotine addiction.

14. A method for identifying a positive modulator of a nicotinic receptor agonist, said method comprising the steps (a) expressing a nicotinic receptor on the surface of a cell; (b) contacting the said nicotinic receptor with a compound known to be a nicotinic receptor agonist and a compound to be tested for positive modulating activity; (c) determining whether the compound to be tested exhibits a positive modulation on the effect of the said nicotinic receptor agonist.

15. A method for identifying a compound which is a nicotinic receptor agonist, said method comprising the steps (a) expressing a nicotinic receptor on the surface of a cell; (b) contacting the said nicotinic receptor with a compound to be tested for nicotinic receptor agonist activity, in the presence of a positive modulator of a nicotinic receptor agonist; and (c) determining whether the compound to be tested exhibits nicotinic receptor agonist activity.

16. A method according to claim 14 or 15 wherein the cell is a *Xenopus* oocyte, a HEK-293 cell or a cell-cultured neuron.

17. A method according to claim 14 or 15 wherein the nicotinic receptor is an α7-nicotinic receptor.

18. A method according to claim 14 or 15 wherein the nicotinic receptor is either a human, rat, chick, mouse or bovine nicotinic receptor.

19. A compound identifiable by a method according to any one of claims 10 to 18.

20. Use of a positive modulator of a nicotinic receptor agonist in the manufacture of a medicament for treatment of or prophylaxis of a condition associated with reduced nicotine transmission.

21. Use of a positive modulator of a nicotinic receptor agonist together with a nicotinic receptor agonist in the manufacture of a medicament for treatment of a condition associated with reduced nicotine transmission.

22. The use according to claim 20 or 21 wherein the modulator is 5-hydroxyindole.

23. The use according to claim 20 or 21 wherein the nicotinic receptor agonist is an α7-nicotinic receptor agonist.

24. The use according to any one of claims 20 to 23 in the manufacture of a medicament for the treatment of Alzheimer's disease, attention deficit hyperactivity disorder, schizophrenia, anxiety or nicotine addiction.

25. The use according to any one of claims 20 to 23 in the manufacture of a medicament for the treatment of Alzheimer's disease.

26. The use according to any one of claims 20 to 23 in the manufacture of a medicament for the treatment of attention deficit hyperactivity disorder.

27. The use according to any one of claims 20 to 23 in the manufacture of a medicament for the treatment of schizophrenia.

5   28. The use according to any one of claims 20 to 23 in the manufacture of a medicament for the treatment of nicotine addiction.